

Application No.: 10/603,646
Office Action Dated: June 19, 2006
Response to Office Action Dated: August 29, 2006

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REMARKS

Claims 1-4, 6-10 and 12-14 were pending prior to filing this Response. Claims 3, 7, 9, 10, 12 and 13 are being amended herein; claims 8 and 14 are being canceled, and therefore claims 1-4, 6, 7, 9, 10, 12 and 13 remain for consideration.

Claim 8 is objected to under 37 C.F.R. § 1.75 as being a substantial duplicate of claim 7. Claim 8 is being canceled in this Response, and therefore the objection to claim 8 is now moot.

Claims 7 and 8 are objected to because the Examiner believes that "voltageless" is not a real word. The Examiner also objects to the phrase "zero point correction". Claim 8 is canceled herein and therefore no longer remains for consideration. The word "voltageless" is being rewritten in claim 7 as "to exhibit zero voltage difference across the circuit", and the objected to phrase "zero point correction" is being removed from the claims. It is therefore respectfully submitted that these objections to claim 7 are overcome.

Claims 7 and 8 are also objected to because the Examiner believes that the words "voltageless", "currentless" and "chargeless" are misspelled. As mentioned above, claim 8 is canceled herein and therefore no longer remains for consideration. With respect to claim 7, the phrase "voltageless, currentless and chargeless" is being rewritten as "to exhibit zero voltage difference across the circuit, zero current and zero charge". It is therefore respectfully submitted that these objections to claim 7 are overcome.

Claims 12 and 13 are objected to because the Examiner believes that the word "effected" should be "affected". In accordance with the Examiner's suggestion, the spelling of the objected to word is being corrected by way of amendment to overcome the objection.

Claims 3, 9, 10 and 12-14 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the

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claims.

Claims 3 and 10 are being amended to clarify that the two coils are connected in series so as to in effect form a single common coil. Claim 9 is amended to address the antecedent basis objection. Claim 12 is amended to clarify that the cycled manner pertains to start-stop or quick-slow cycling (see specification at paragraphs [0021] and [0033]). Claim 13 is amended as suggested by the Examiner although it should be clear that a start-stop cycle implies a restart after a stop phase in order to initiate the next part of the cycle. Claim 14 is being canceled herein and therefore no longer remains for consideration. In view of the foregoing, it is respectfully submitted that the rejection of the above-mentioned claims under 35 U.S.C. § 112, second paragraph is now overcome.

Claim 14 is rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Claim 14 is being canceled herein and therefore the rejection of claim 14 is now moot.

Claims 1-4, 6-10 and 14 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Steingroever (U.S. Pat. No. 4,058,763) in view of Steingroever et al. (U.S. Pat. No. 4,384,313). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

Steingroever '763 does not teach a method for demagnetizing objects, but rather describes a device for manipulation of the magnetization of permanent magnets where a controlled demagnetizing of permanent magnets with a measured magnetic field is explained. A person of ordinary skill in the pertinent art looking for a solution for demagnetizing ferromagnetic objects with statistically oriented magnetic fields in terms of an assembly line would not search for a device for testing and manipulation of permanent magnets. Because of the field of application, Steingroever '763 does not teach a pre-treatment station for demagnetizing magnetically hard locations, as is recited in independent claim: 1 and 9 of the

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present application, because magnetic materials for use in permanent magnets are at large magnetically hard. Steingroever also does not take the precautions to make the oscillation circuit dead (i.e., to exhibit zero voltage difference across the circuit, zero current and zero charge), as is recited in amended claim 7 of the present application. Accordingly, Steingroever '763 contains insufficient to be used as a primary reference to render the rejected claims obvious.

Steingroever et al. '313 is directed to a method where frequency of the supply voltage is brought to the resonant frequency of the oscillator circuit by measuring the phase shift between voltage and current of the oscillator circuit. This adjustment takes time and makes the process slow. The present invention in effect is starting the demagnetization with the resonant frequency of the oscillation circuit. It is only disclosed how the intensity of the alternating magnetic field is reduced and that the reduction of the frequency leads to demagnetization.

Moreover, Steingroever et al. '313 does not teach a pre-treatment station for demagnetizing magnetically hard locations in the object. The mentioned conduction of the objects to be demagnetized continuously through the magnetic field (claim 4) is the drawback which the present invention eliminates with the start-restart transport and demagnetization with the staying times between 20 and 500 periods. The present invention discloses and claims the coupled transport of the objects with predetermined staying times (see independent claims 1 and 9) in the magnetic field.

In view of the foregoing, it is respectfully submitted that the teaching of Steingroever et al. '313 does not materially add to the teaching of Steingroever '763 to render obvious independent claims 1 and 9 of the present application. Moreover, because remaining rejected claims 2-4, 6, 7 and 10 each ultimately depend from and thereby incorporate the limitations of one of independent claims 1 and 9, these dependent claims are not obvious for at least the reasons set forth for the independent claims.

Claims 12 and 13 are rejected under 35 U.S.C. § 103(a) as allegedly being

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unpatentable over Steingroever in view of Steingroever et al. and further in view of Schergen et al. (U.S. Pat. No. 4,360,854). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

Schergen et al. is directed to an apparatus for demagnetizing in the industrial field. The apparatus is not configured as a pre-treatment station for demagnetizing magnetically hard locations in the object. Schergen et al. only discloses a cycled reversing of the polarity in a series of steps. By examining FIG. 1 of Schergen et al., it appears to be impossible to drive objects through the coils in an automated way. Moreover, no demagnetizing as a whole and also the above-mentioned precaution are not disclosed.

With respect to claim 12, it is respectfully submitted that Schergen et al. does not disclose a cycled transport of objects. Schergen only discloses a cycled reversing of the polarity in a series of steps. Even by examining FIG. 1 of Schergen it appears to be impossible to drive the objects through the coils.

With respect to claim 13, Schergen et al. does not mention an automated transport of the objects or the cradles. The start switch 156 (36) of FIG. 8 starts the polarity reversing motor 36 (30) (Schergen et al. Column 4, line 17) and no transport mechanism of the objects. Schergen describes only a cycled reversing of the polarity and a cycled reduction of the current.

Moreover, as was demonstrated above with respect to claim 9 from which rejected claims 12 and 13 each ultimately depend, Steingroever '763 and Steingroever et al. '313 when taken either alone or in combination contain insufficient teaching to render obvious claim 9. Because claims 12 and 13 each incorporate the limitations of claim 9, it also follows that Steingroever '763 and Steingroever et al. '313 contain insufficient teaching when combined with Schergen et al. to render obvious claims 12 and 13.

As an additional matter, none of the cited references used in the claim

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rejections discloses a change in the alternating field by controlling the frequency and the amplitude (see specification at paragraph [0014]). The prior art of the present invention contains coils which are part of a series oscillation circuit, but in the present invention the inverter is feeding a controlled alternating current in the coils with the resonance frequency of the oscillation circuit from the beginning of the demagnetization process (see specification at paragraphs [0025] and [0028]). The demagnetization curve is not specified by the capacitor discharge, thus the damping of the oscillation of the demagnetization curve (see specification at paragraph [0031]) may be selected according to the problem. The possible variation of the frequency (see specification at paragraph [0023]) caused by using the inverter allows the treatment of ferromagnetic objects with different thicknesses resulting in different penetration depths.

One of ordinary skill in the pertinent art could not have modified Steingroever's magnetizing manipulation apparatus to demagnetize objects for a controlled number of periods. The present invention does not discover the optimum range by routine experimentation with the Steingroever ideas, but rather chooses the frequency for demagnetizing for a specified penetration depth.

In view of the foregoing, it is respectfully submitted that claims 1-4, 6, 7, 9, 10, 12 and 13 are in condition for allowance. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

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No fees or deficiencies in fees are believed to be owed. However, authorization is hereby given to charge our Deposit Account No. 13-0235 in the event any such fees are owed.

Respectfully submitted,

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